

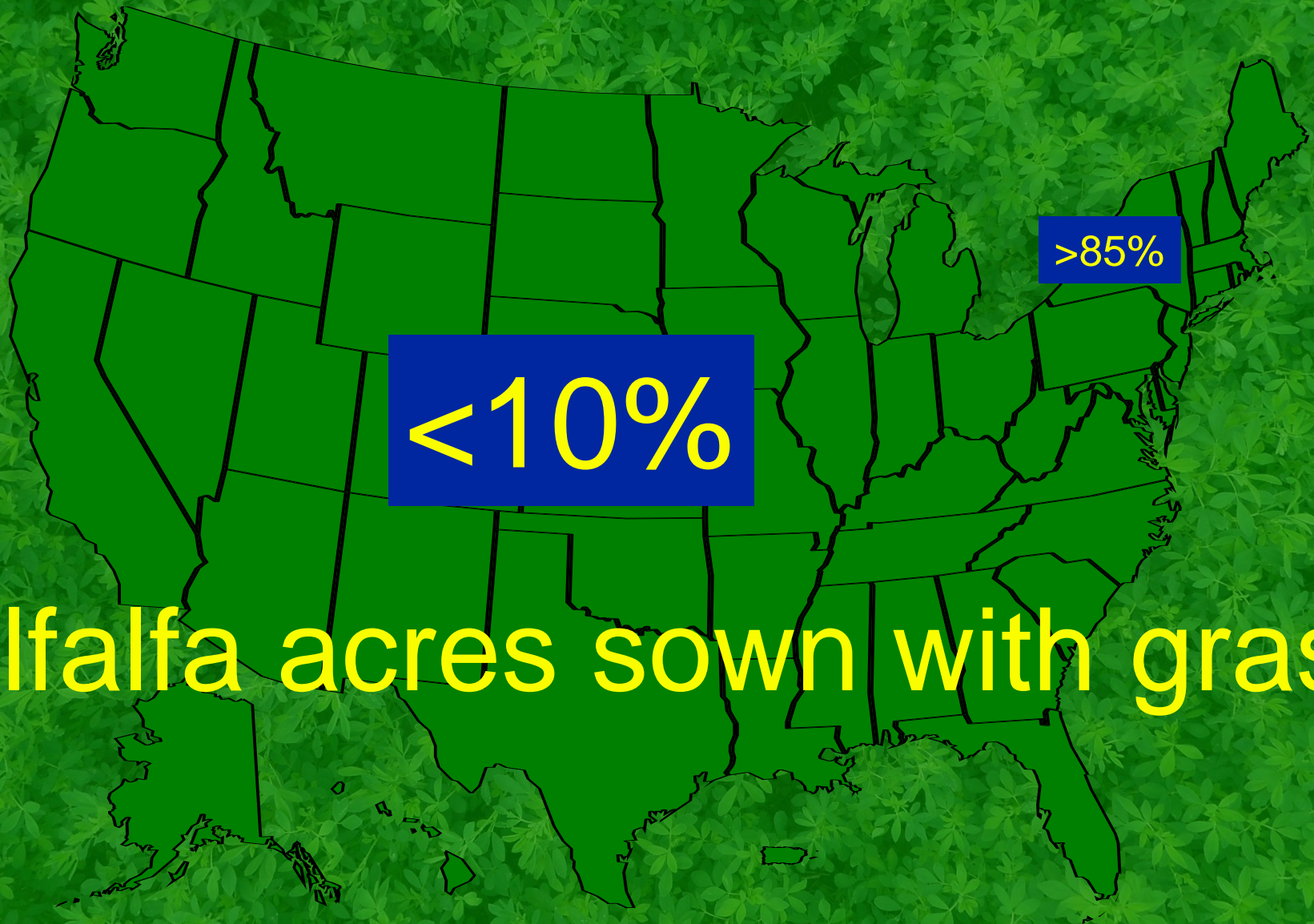
# New Insights on Alfalfa-Grass Mixtures for Dairy



**J.H. Cherney, Cornell University**



# The Northeast is different.



## Alfalfa acres sown with grass



# **Why so much alfalfa-grass?**

**Sub-optimal soil drainage**

**Comfort level feeding alfalfa-grass**

**Research supporting alfalfa-grass  
(Cornell and UW)**

**There have been improvements  
in alfalfa, some in grass.**



Issued June 14, 1909

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USDA FARMERS' BULLETIN 361

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# MEADOW FESCUE

ITS CULTURE AND USES.

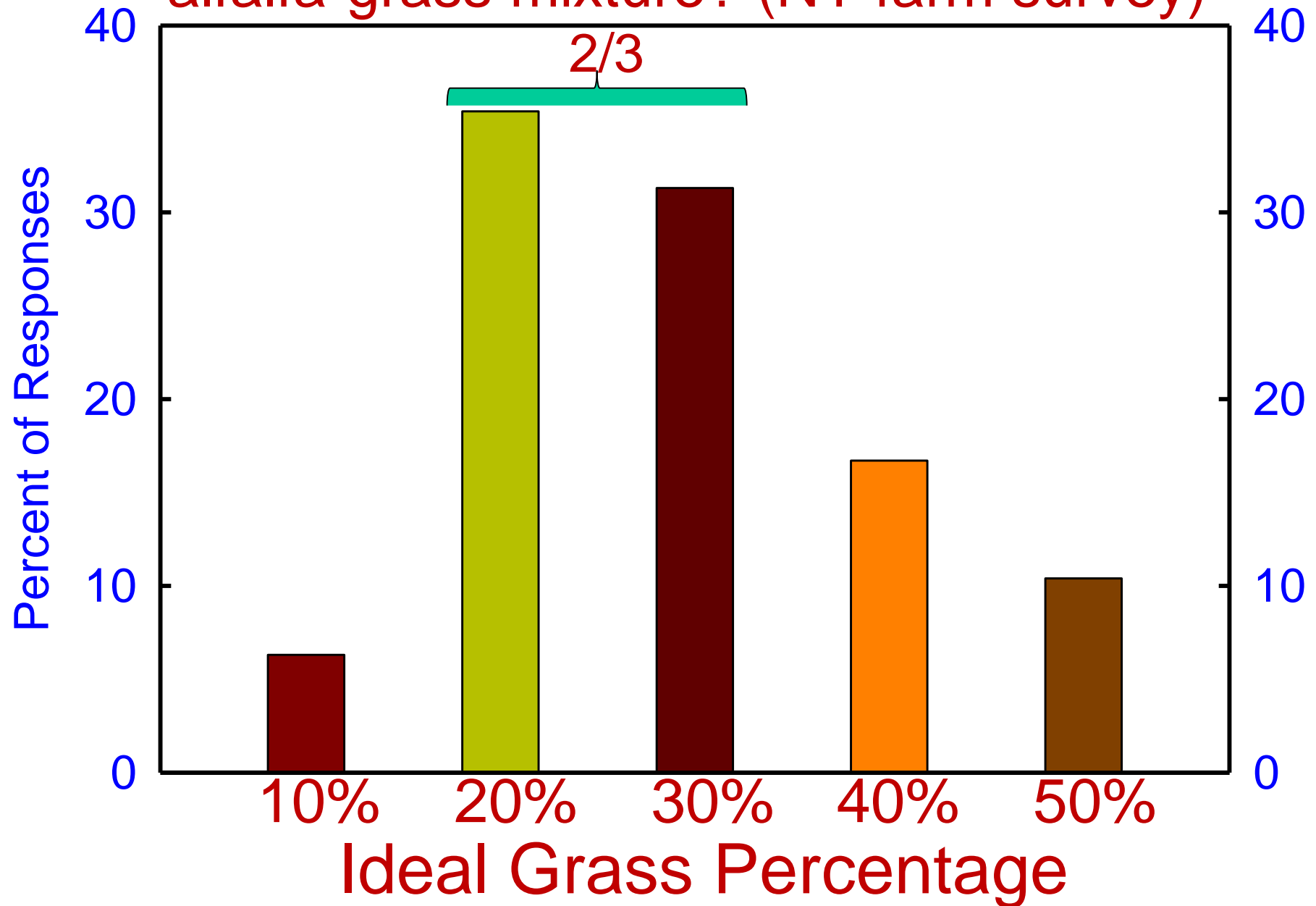
H.N. Vinall

# Meadow fescue region of USA, 1909



“In the East, meadow fescue has shown itself to be almost as well adapted as orchard grass to the clay soils, and though not quite as productive, it is rather more palatable than the latter.”

What Grass Percentage is ideal in an alfalfa-grass mixture? (NY farm survey)



# Relative Importance of Factors on Alfalfa-Grass Ratio (Before planting)

<u>Favors Alfalfa</u>	<u>Factor</u>	<u>Favors Grass</u>
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Higher	Soil pH (6.5)	Lower
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More	Soil drainage	Less
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e.g.(Tim)	Grass species	e.g.(OG)
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Lower	Grass seeding rate	Higher
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Less	Soil compaction	More
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Later	Spring seeding date	Earlier
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Earlier	Summer seeding date	Later
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# Relative Importance of Factors on alfa-Grass Ratio (After planting)

<u>Favors alfa</u>	<u>Factor</u>	<u>Favors Grass</u>
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None	ure application	More
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None	lizer	More
------	-------	------

More	K fertiliz	Less
------	------------	------

Newer	Stand age	Older
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Less	Cuts per season	
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Lower	Stubble ht. (season)	Higher
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Higher	Stubble ht. (fall)	Lower
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Moisture status for 1 month post-planting



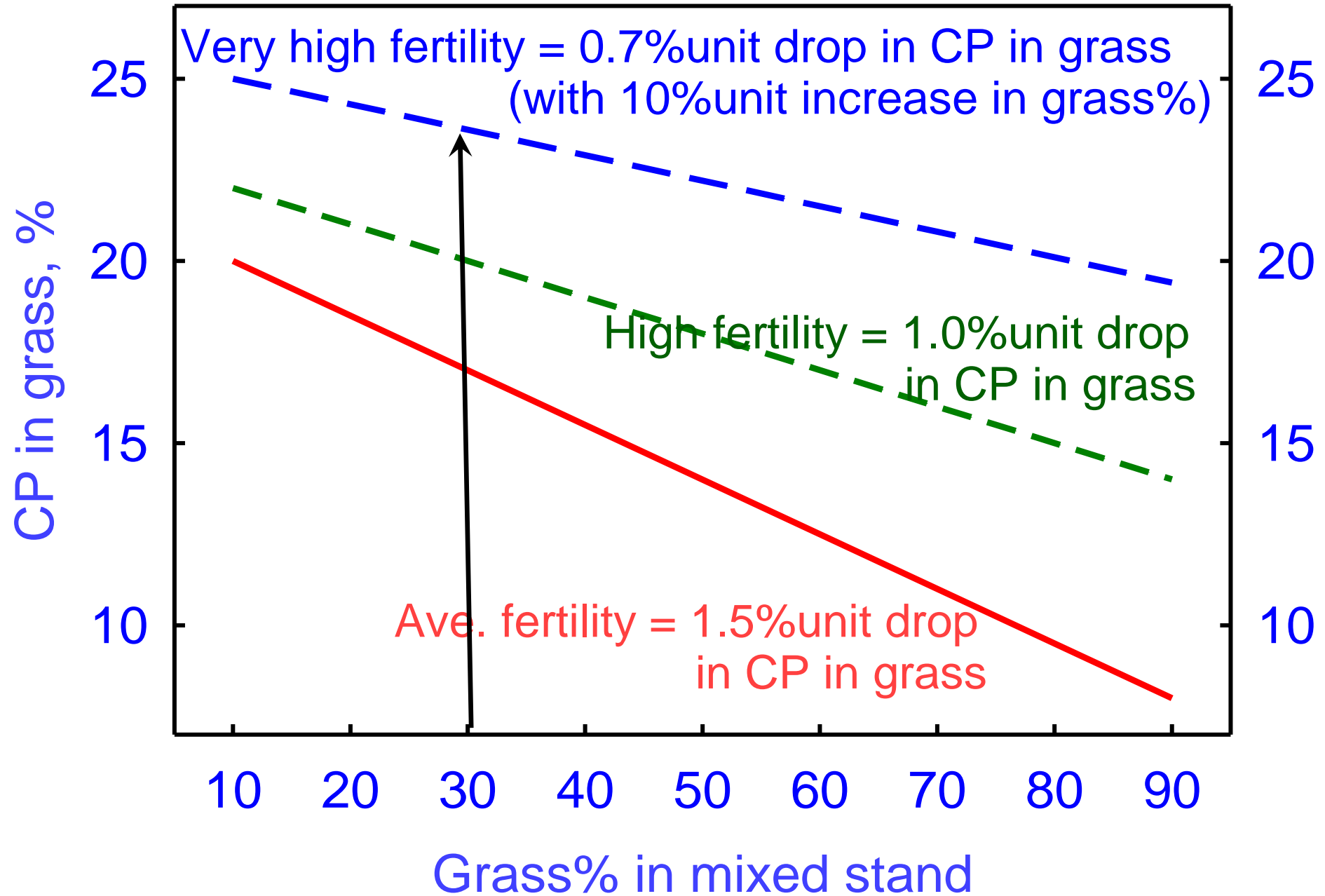
# Yield Summary, recent research

In Northeast, alfalfa-grass  
outyields alfalfa.

DM yield is 0.1 to 0.4 t/a  
higher for every 10 %unit  
increase in grass percentage.

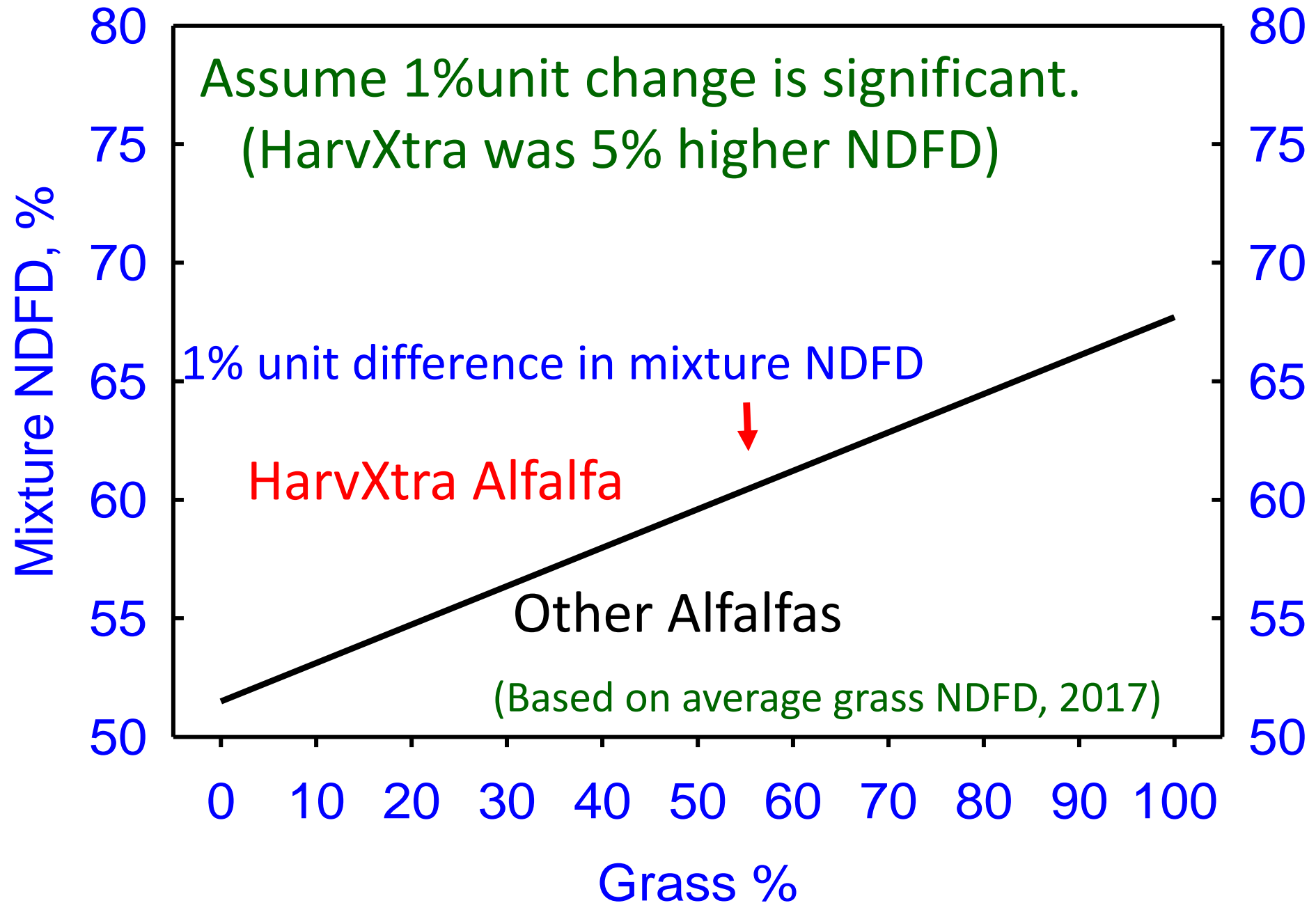


# Effect of grass% in mixture on grass CP



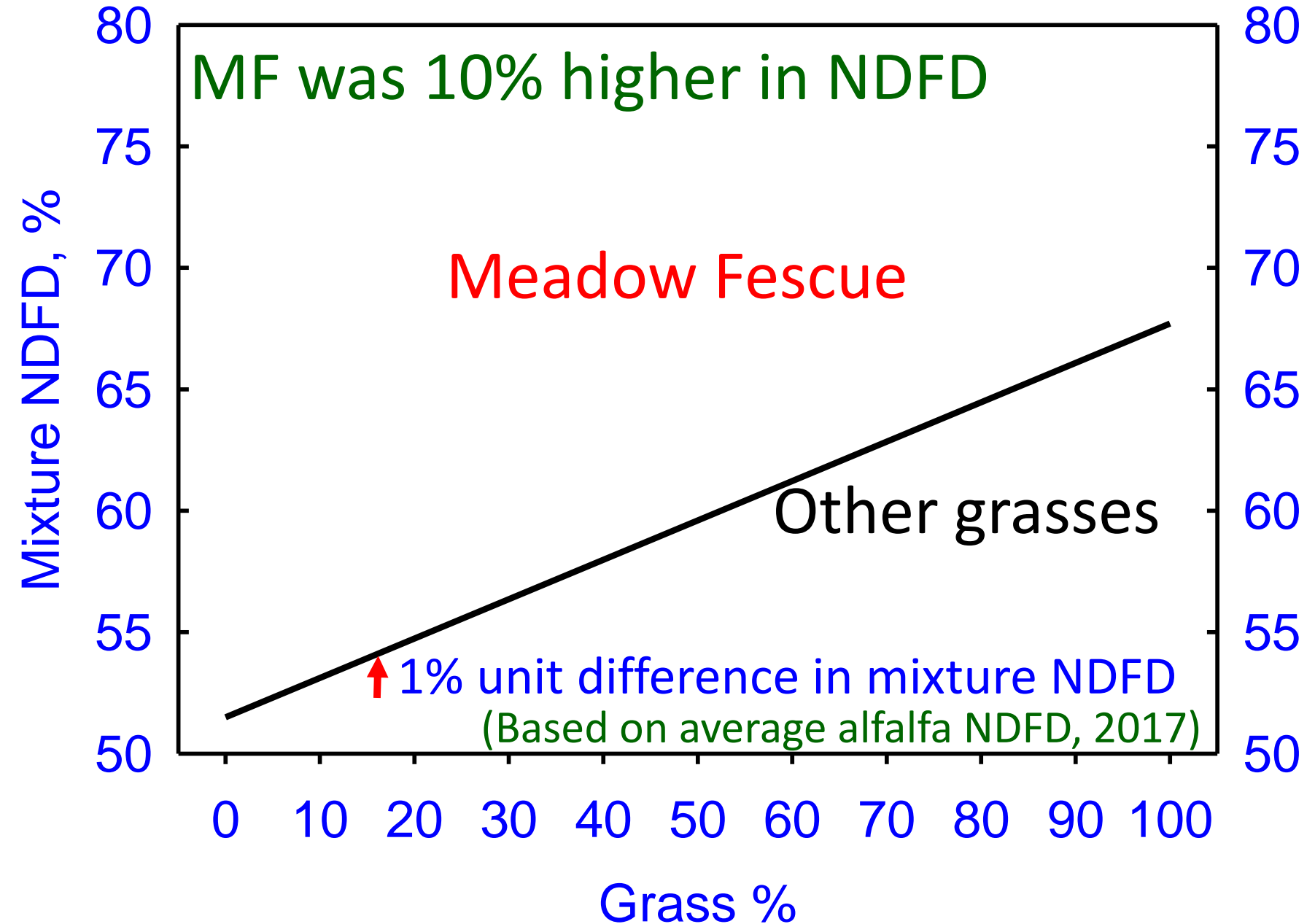


# Alfalfa and Fiber Digestibility of Mixtures

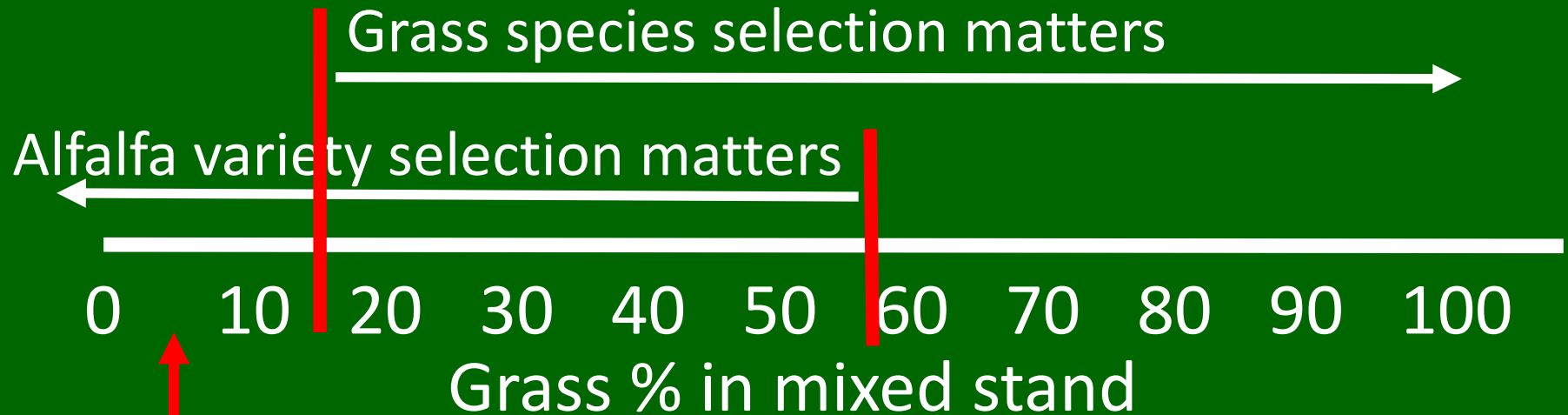




# Grass and Fiber Digestibility of Mixtures



# Impact of Variety/Species selection on Fiber Digestibility of Mixtures (If 1% unit NDFD in a mixture is significant)



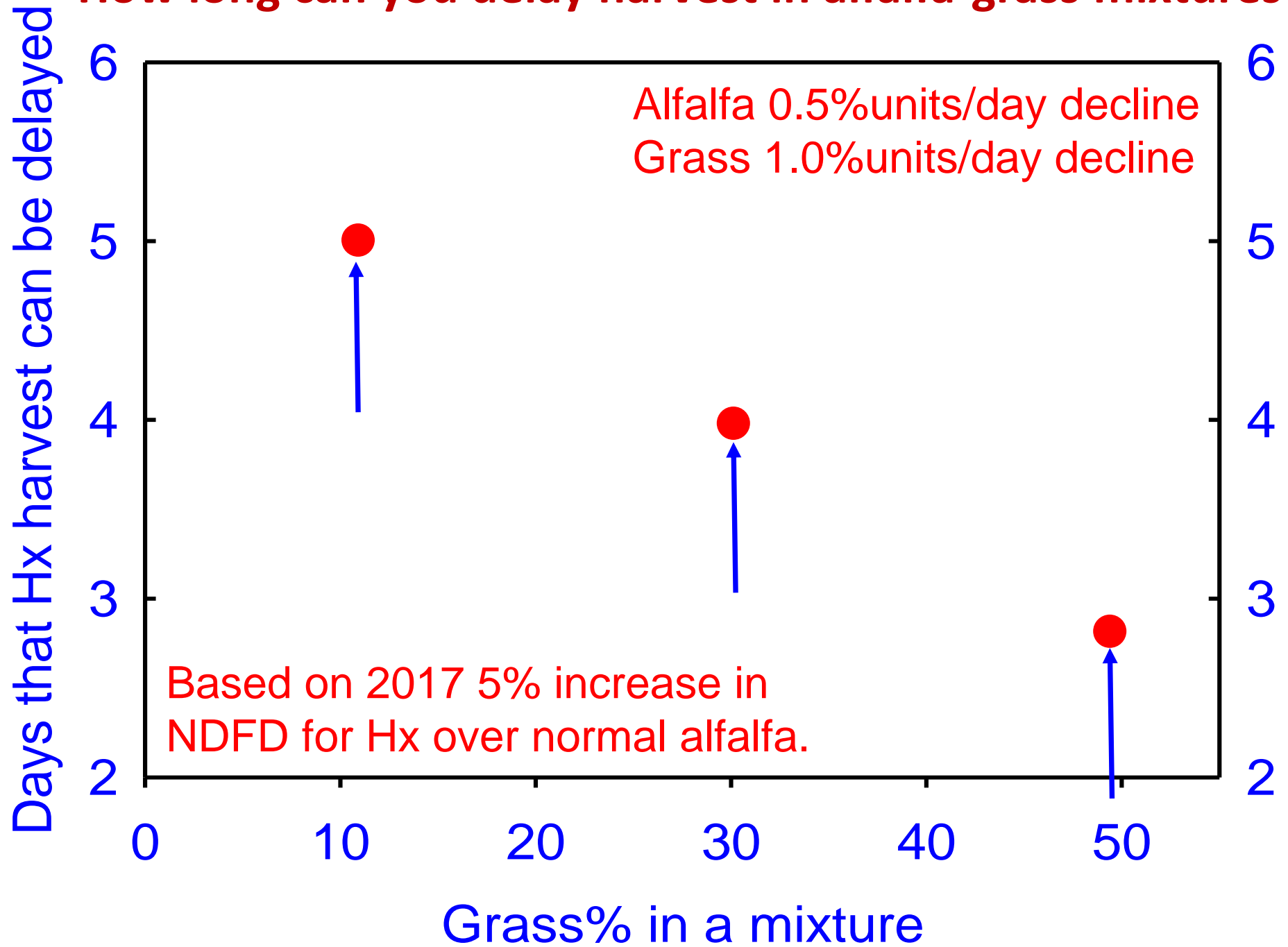
As low as 5% (any) grass will increase  
NDFD of an alfalfa-grass mixture 1% unit.

Grass NDFD is much higher than alfalfa NDFD.

What about delaying harvest (HarvXtra e.g.)?



# How long can you delay harvest in alfalfa-grass mixtures?



# Reduced lignin alfalfa vs. MF

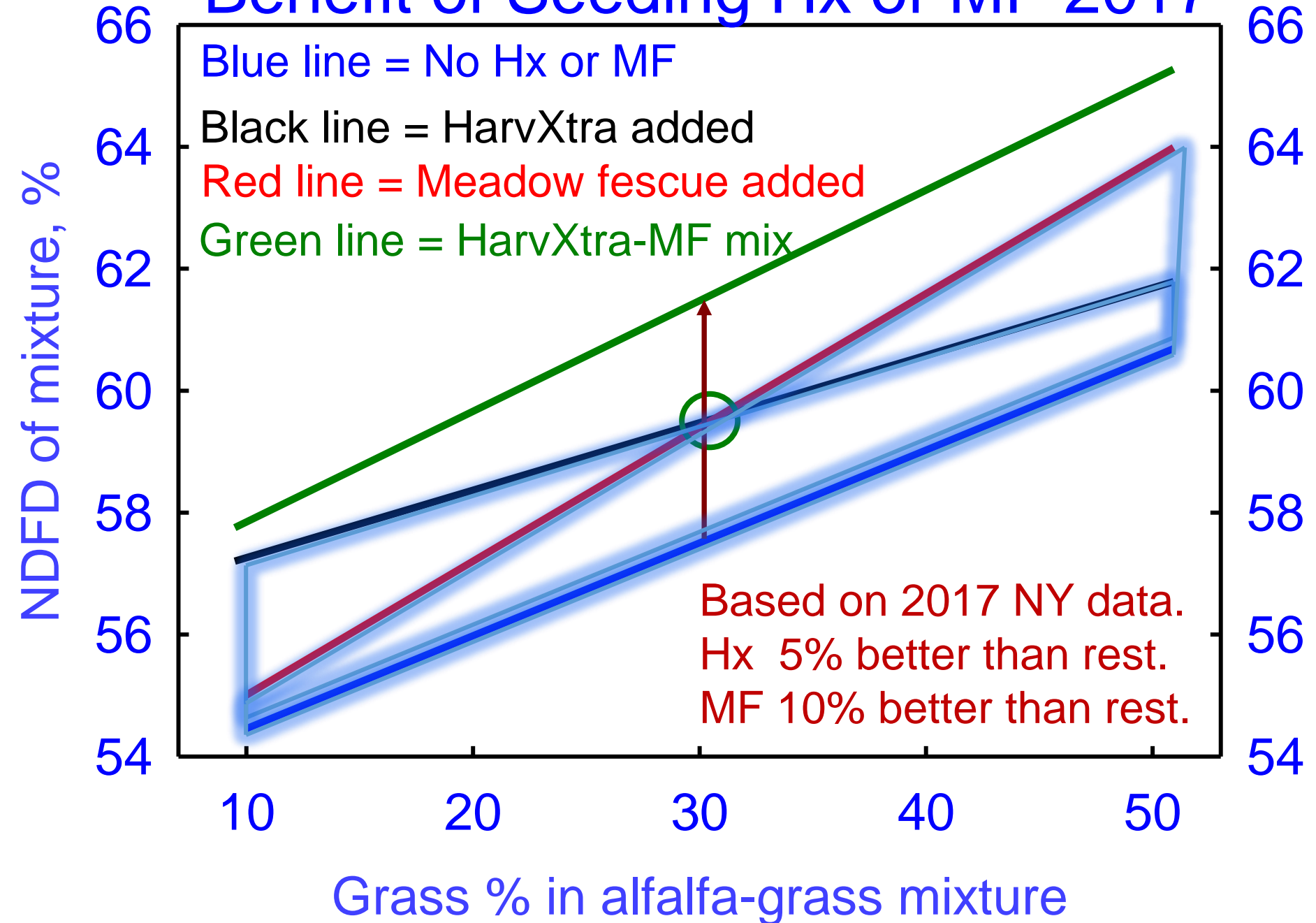
Hx averaged 14% lower lignin, 2017  
Compared to HiGest, WL355, WL356HQ,  
LegenDairyXHD, Pioneer 55H94.

MF averaged 17% lower lignin, 2017  
Compared to TF, OG, Festulolium.

**(All lignin values are weighted for yield)**



# Benefit of Seeding Hx or MF 2017



**So what is the downside?**

**Getting and keeping 20-30% grass**

**Current Recommendation**

**Meadow fescue (1-2 lb/a)**

**High Quality alfalfa (12-14 lb/a)**



# Grass% can increase rapidly

New York

Grass % in mixture

100

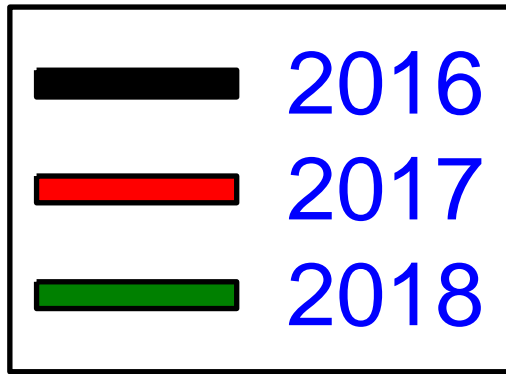
80

60

40

20

0



Meadow fescue

Orchardgrass

Festulolium

100

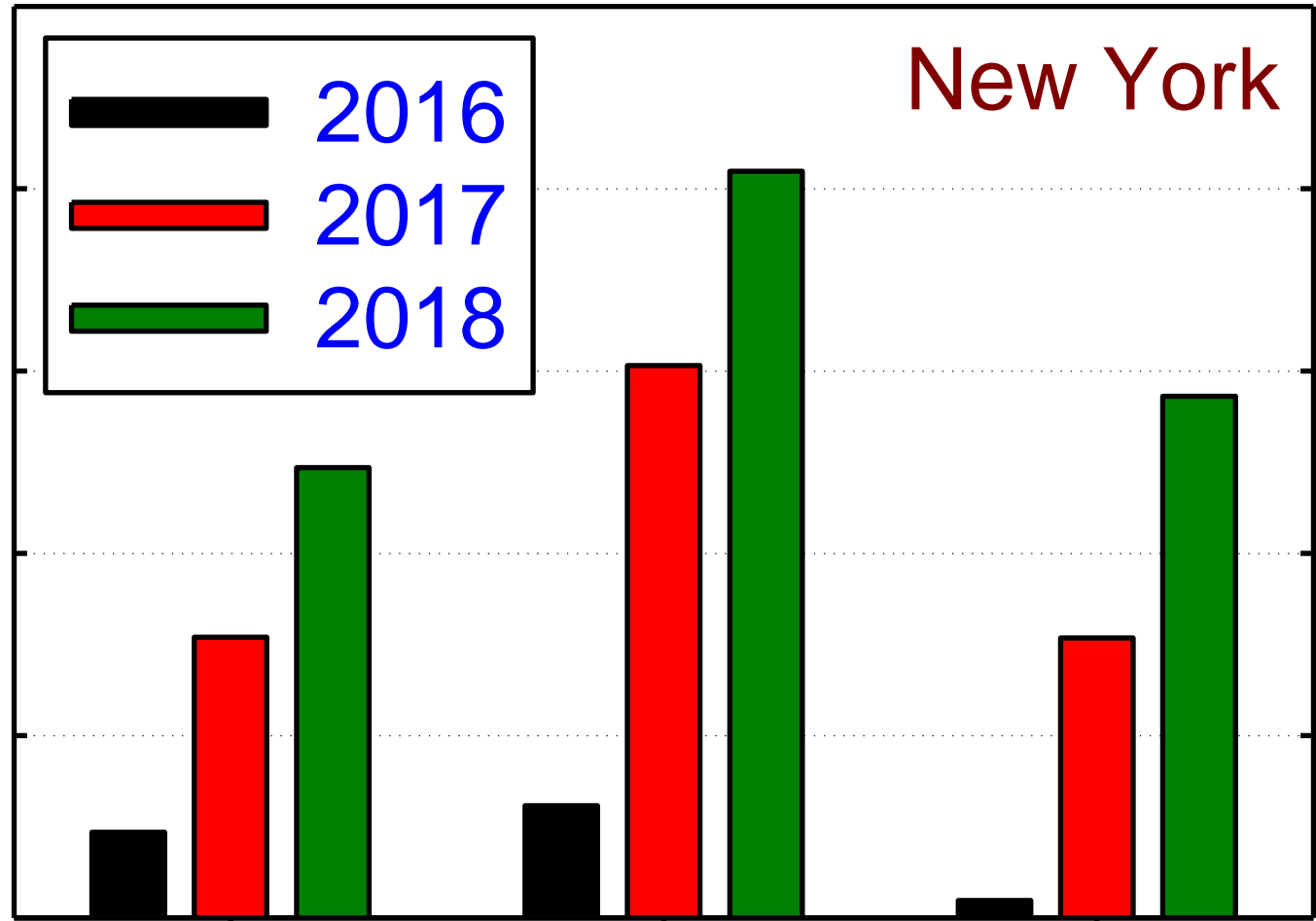
80

60

40

20

0



# **2019 Alfalfa-Meadow Fescue Research**

**19 MF varieties in pure stands and  
sown with alfalfa.**

**Tetrax**

**Liherold**

**Preval**

**Pradel**

**Barvital**

**Cosmonaut**

**Driftless**

**Hidden Valley**

**Tored**

**SW Revansch**

**Pardus**

**Barika**

**Barcrypto**

**Laura**

**SW Minto**

**Arni**

**Jogeva 47**

**Harlequin**

**Hyperbola**



10% MF (Late Sept. 2018)



End of seeding year



25% MF (Late Sept. 2018)

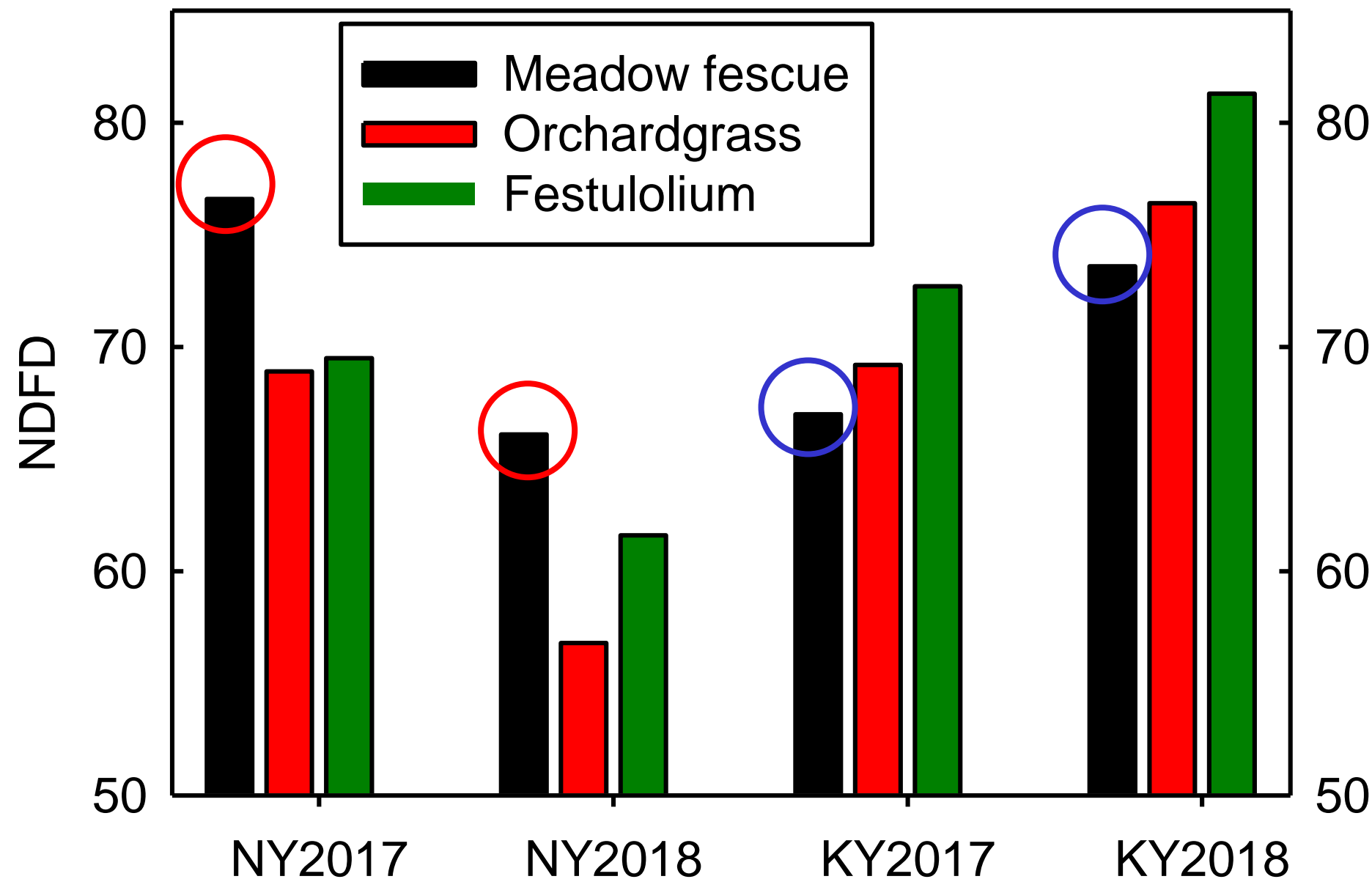


Range of 0% visible to 25% MF

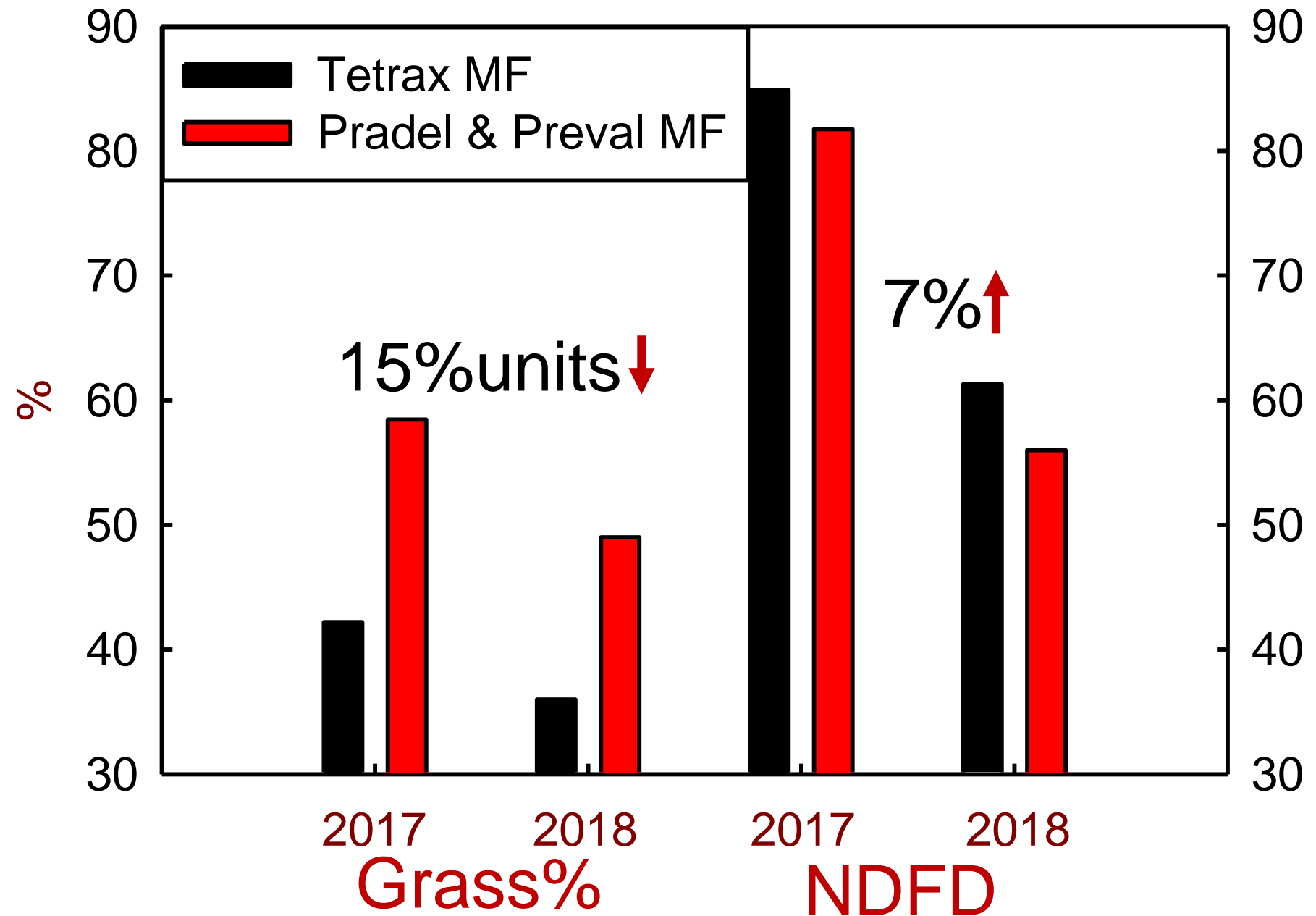
End of seeding year



# Grass quality (A-G stands) is affected by region

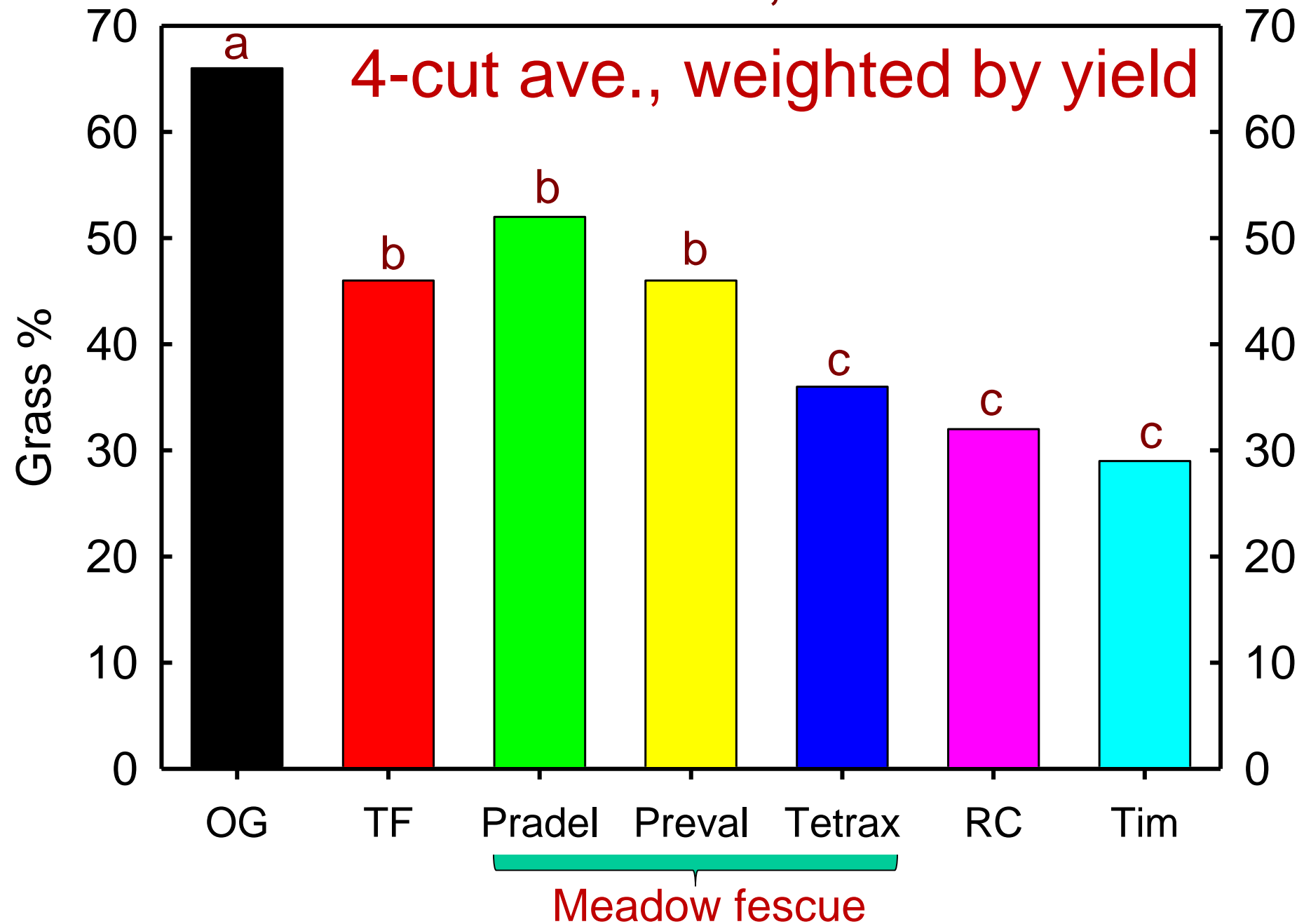


# Differences among MF varieties

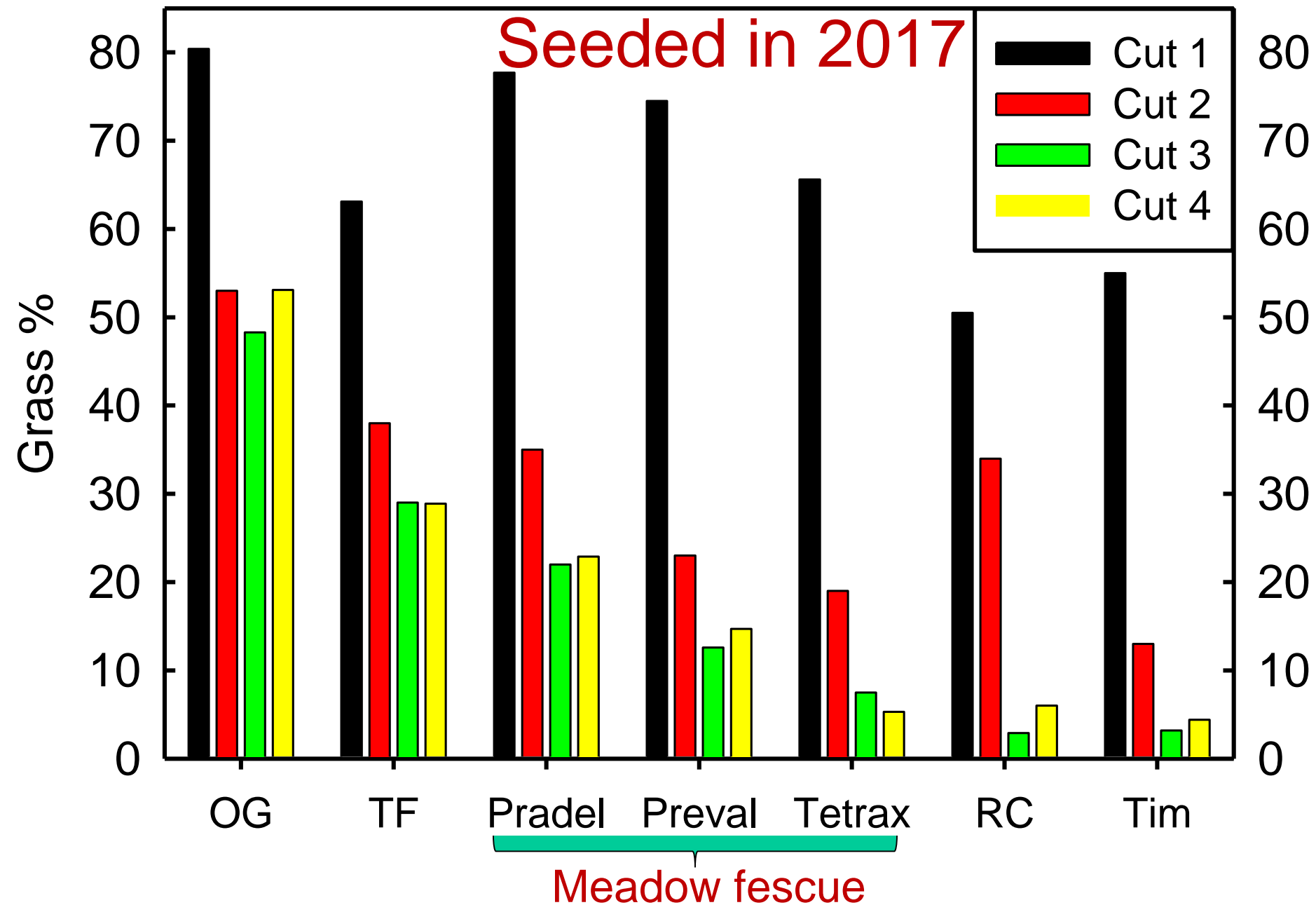




# 2018: Alfalfa-Grass, northern NY



# 2018: 4 cuts: Effect of weather



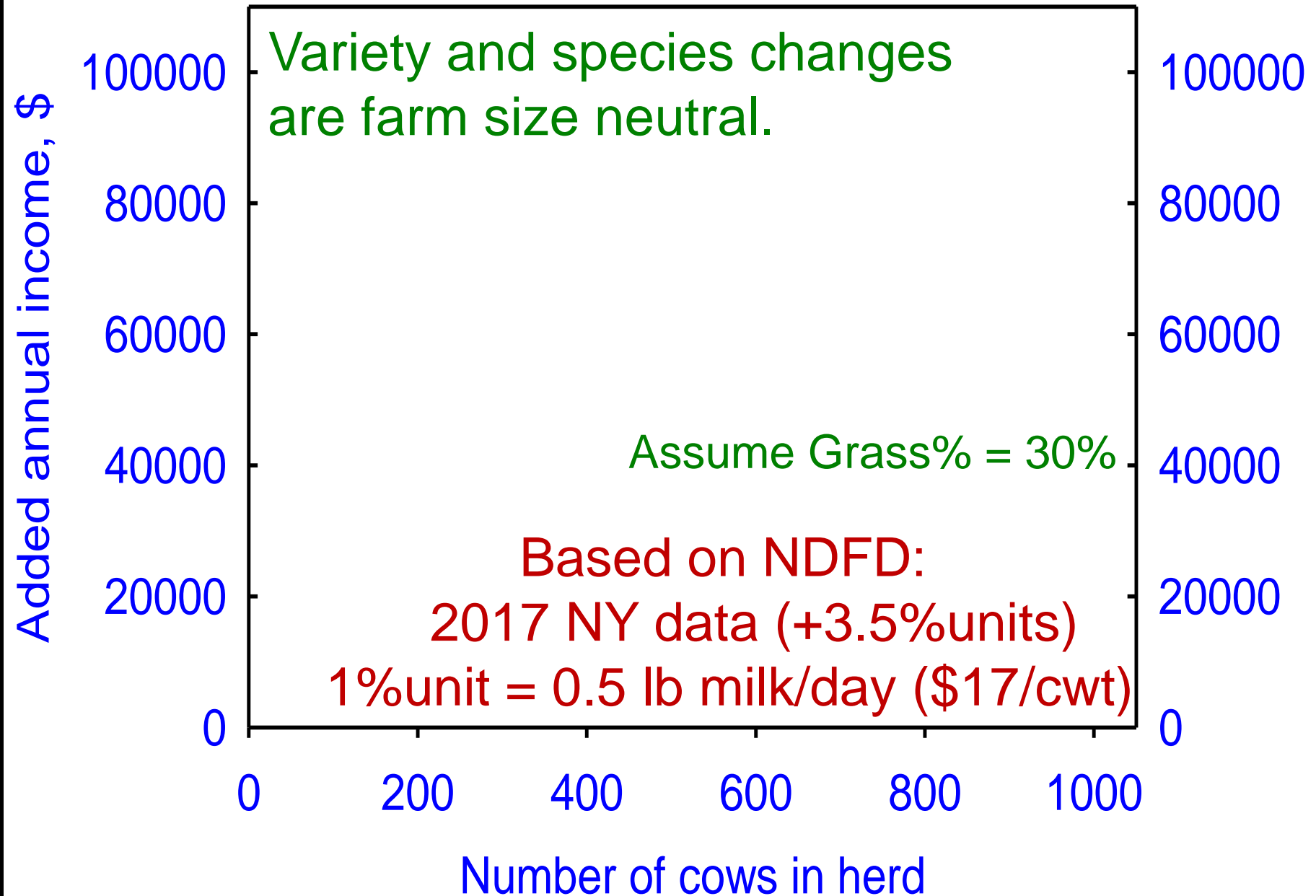


# Economics of Quality

**1%unit NDFD = 0.5 lb milk/cow/day**

**What is the potential economic advantage of improved grass & alfalfa?**

# Including MF and Hx in mixtures (NY)



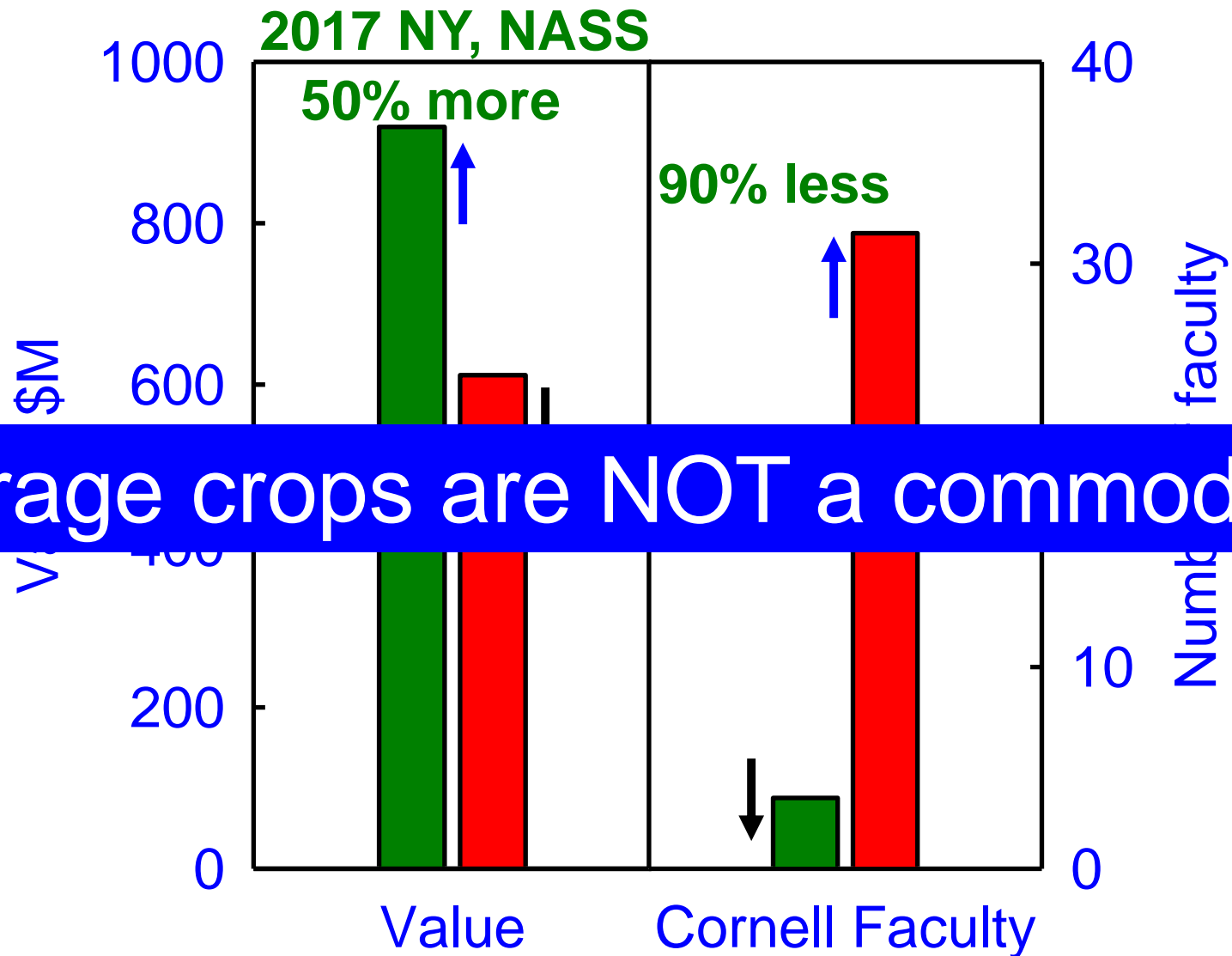




**Grass% in mixtures  
is affected by weather**

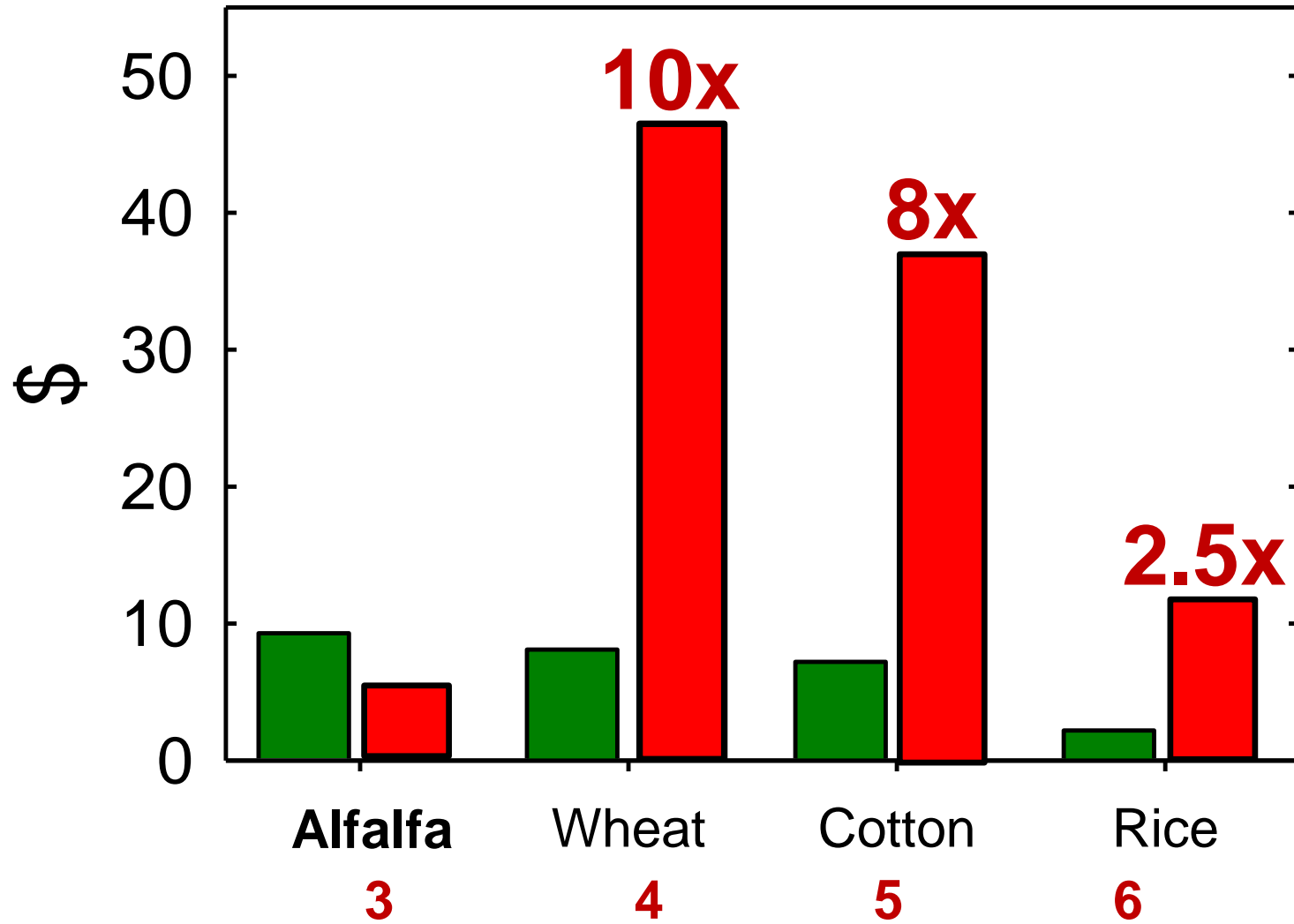
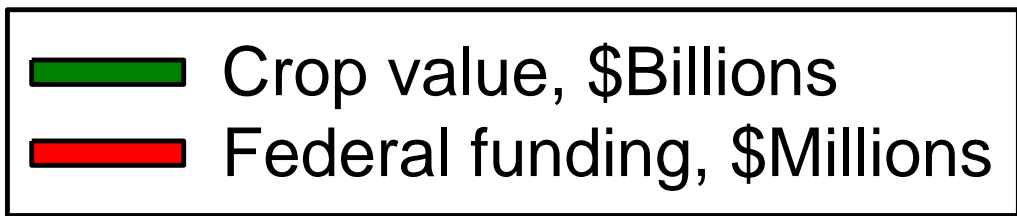
**Grass selection requires  
region-specific guidelines**

**This requires public  
forage researchers**



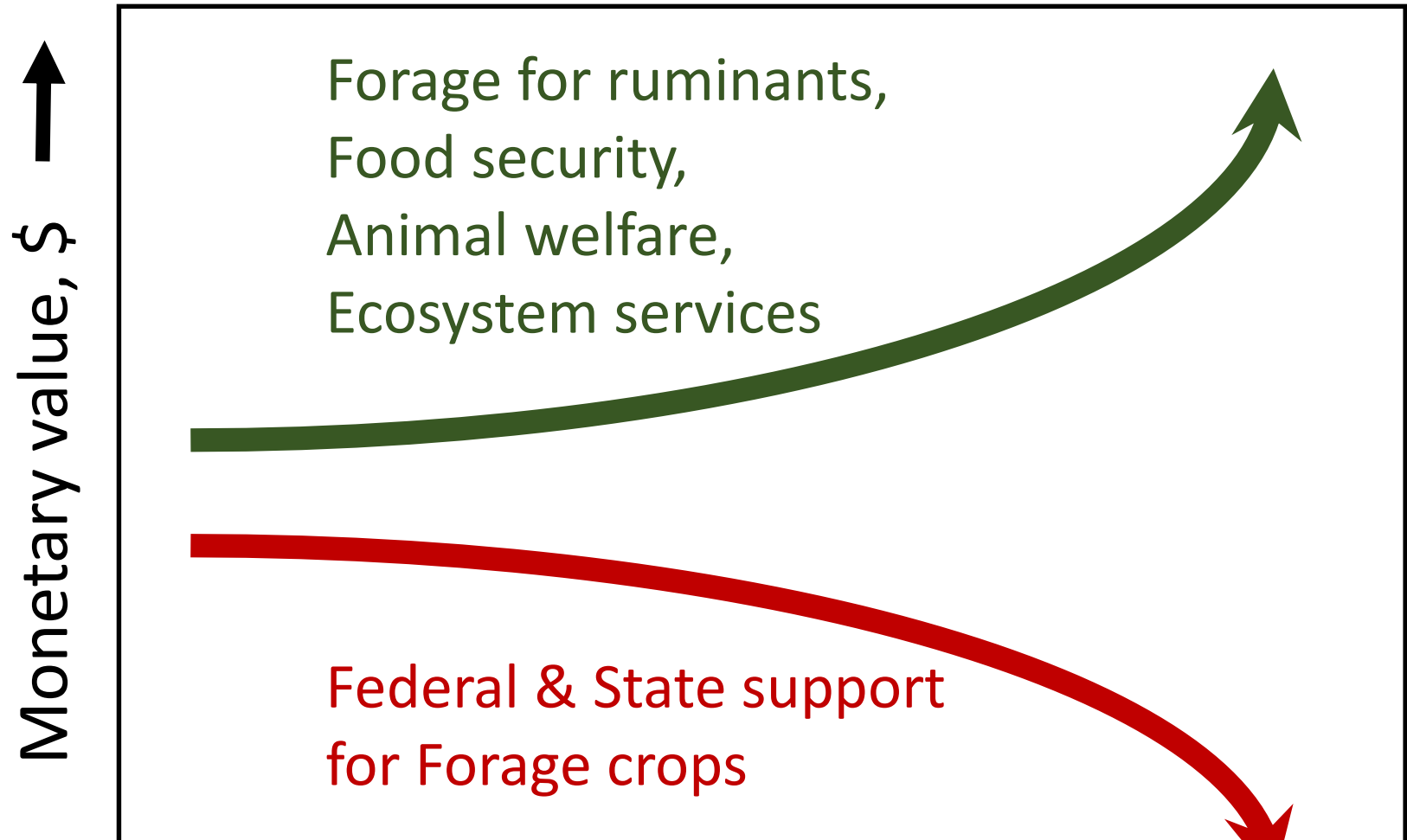
Forage crops are NOT a commodity!





Ranking of USA crop values, 2017





**The loss of forage public researchers impacts grass more**

# Summary - Pros & Cons of Alfalfa-Grass

## Pros

Healthier animals  
Longer stand life  
Less winterkill  
Less traffic damage  
Fewer pests & disease  
Improved soil health  
Less erosion

## Cons

Variable forage quality  
Limited weed control  
Roundup-Ready alfalfa



# HarvXtra Air Seeding in NY

A wide-angle photograph of a lush green alfalfa field. The field is flat and extends to a line of trees in the distance. The sky is overcast with grey clouds. The text is overlaid on the image.

Establish RR-alfalfa and spray for weeds.  
Interseed grass into pure alfalfa stand.

Has been done successfully in spring  
and late summer after spraying Roundup.



A photograph of a healthy alfalfa and grass field. The plants are vibrant green and appear to be in full growth. The background shows a clear blue sky and some distant trees.

**Alfalfa-Grass = Milk + Healthy Cows**

**Alfalfa-Grass is not easy to manage**

**20-30% grass in mixture is ideal**

**Alfalfa = GDD, Grass = Daylength**

**Meadow fescue looks good (Northeast)**

**Choose late maturing grass varieties.**



**The End**

